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Imagery analysis report

SA-2 and SA-3 Deployment in India (S)

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SA-2 AND SA-3 DEPLOYMENT IN INDIA (S)

INTRODUCTION

1. (S/D) This report discusses the status of surface-to-air missile (SAM) facilities in India. Currently, 39 known SA-2 and SA-3 SAM facilities are in India. These include 31 SAM sites, six support facilities, one SAM depot, and a test range. Figure 1 shows the locations of these facilities and is keyed to Table 1, which indicates the order-of-battle and status of each facility.

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2. (S/D) The SA-2 and SA-3 SAM systems are under the control of the Indian Air Force. The British Tigercat, the Soviet SA-6 and SA-7 SAM systems, and the air defense artillery are under the control of the Indian Army and will not be discussed in this report.

Deployment

3. (S/D) Units at SA-2 and SA-3 sites are, in air force tradition, referred to as squadrons. Fifteen of the 31 SAM sites in India are occupied by SA-2 squadrons, eight are occupied by SA-3 squadrons, two are SA-2 sites occupied by SA-3 equipment, one is a training site, and five are unoccupied sites. Several additional SAM sites have been abandoned or overgrown.

4. (S/D) SA-2 squadrons are deployed around the military/industrial complexes of New Delhi, Chandigarh, Bombay, Agra, Baroda, and Calcutta. An SA-2 squadron consists of six SA-2 launchers, missile transporters, and electronics and related support equipment. The SA-2 squadrons are usually observed at fixed sites. However, there are exceptions, such as the field-deployed site at Bhatinda Airfield.

5. (S/D) SA-3 deployment is basically concentrated along the India/Pakistan border. Most of the SA-3 squadrons are deployed at airfields. However, two SA-3 squadrons are at former SA-2 sites (Figure 2). An SA-3 squadron consists of six SA-3 four-rail launchers (usually located at two sites), missile transporters, and electronics and associated support equipment. In the Calcutta area, SA-3 equipment has been seen at the SAM support facility but has not been observed deployed.

Support, Production, Training, and Test Facilities

6. (S/D) Each of the six major complexes has an SA-2 SAM support facility to serve the units in that area. SA-3 equipment has also been observed on several occasions at these support facilities. The Delhi SAM Depot (Figure 3) is the only facility in India used for major SAM repair and overhaul. In addition to maintenance, this depot also produces spare parts for the SA-2 system. SA-3 equipment was observed for the first time at this depot indicating that maintenance and overhaul on this system will also be done here.

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7. (S/D) Research and development were undertaken to build an indigenous SAM, the SA-75. This effort, termed "Project Devil," was actually a reengineered version of the SA-2. The project has now reportedly been cancelled by India's Defense Research and Development Organization after the Indian Air Force concluded that the SA-75 did not meet future air threats.¹

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8. (S/D) SAM training is conducted at Baroda SA-2 SAM Training Site A19-02. This is the only site that appears to be dedicated to training. Both SA-2 and SA-3 squadrons have been observed training there.

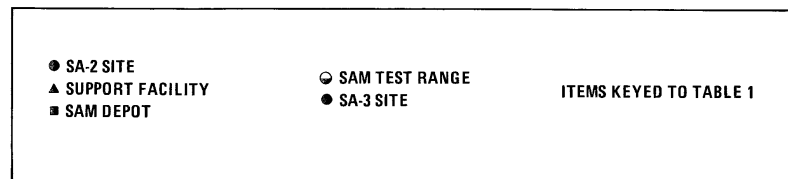
9. (S/D) A SAM test range is on the east coast of India on the Bay of Bengal. Bapatla SAM Test Range (Figure 4) is used for live-fire exercises and had been used only for SA-2 firings until recently, when SA-3 equipment was observed there.

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Imagery Analyst's Comments

10. (S/D) India's air defense network—composed of the SA-2 and the SA-3 SAM systems, interceptor aircraft, and air warning radars—protects those military/industrial complexes that could be reached by neighboring countries. A weakness in the system is the total lack of SAM deployment along the coast from Bombay to Calcutta, as well as no SAM protection for the two important scientific/industrial cities of Hyderabad and Bangalore. This weakness, however, exists only if the threat is from one of the major powers.

11. (S/D) An indication of improvement to India's SAM system has been the introduction of KING PIN electronic countermeasures (ECM) radar jammers observed at the Delhi SAM Support Facility in September 1977. Indian government officials have expressed in the open press a desire for self-sufficiency in weapons production, but the country lacks indigenous or licensed SAM production. Presently, all SAM systems have been obtained from foreign suppliers.



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Table 1.
Data on SA-2 and SA-3 Facilities in India*

(Keyed to Figure 1)

The table is in extent is classified SECRET//NINTEL

Item	Name/Coords/BE	Date	Status**	Order-of-Battle	Remarks	Item	Name/Coords/BE	Date	Status**	Order-of-Battle	Remarks	Item	Name/Coords/BE	Date	Status**	Order-of-Battle	Remarks
1	Srinagar SA-3 SAM Site A01-03 33-59-17N 074-46-31E		Unc		Approx 30 SA-3 cans & 3 SA-3 trangs are in the SW disposal area at Srinagar Airfield.	14	Delhi SAM Site Bawana B02-02-28-46-33N 077-02-13E		Unc		Site was last observed occupied in May '79	28	Raithanpur SA-3 SAM Site 23-13-17N 068-53-33E		Ocr	6 SA-3 4-rail launchers (w/o missiles) 5 SA-3 trangs 50 SA-3 cans (approx) 2 LOW BLOW radars 2 FLAT FACE radars 2 SQUAT EYE radars 1 prob SPOON REST radar	Site is at Raithanpur Airfield.
2	Puthankot SAM Site A18-03 32-13-10N 075-37-00E		Ocr	5 SA-3 4-rail launchers (w/o missiles) 1 SA-3 trang 2 LOW BLOW radars 1 FLAT FACE radar	At least 40 SA-3 cans are in the SW disposal area at Puthankot Airfield.	15	Delhi SAM Site Khokra B04-03 28-32-05N 077-23-00E		Ocr	6 SA-2 launchers (w/o missiles) 6 SA-2 trangs 1 FAN SONG radar	SA-3 equipment was observed at this site from Dec '78 through May '79	29	Bardola SA-2 SAM Site A01-02 25-20-30N 073-13-25E		Ocr	6 SA-2 launchers (w/o missiles) 7 SA-2 trangs (1 with missile) 1 FAN SONG radar	Site is on the N edge of Bardola Airfield (BE 0606-0401)
3	Amritsar SA-3 SAM Site 31-42-22N 074-45-50E		Ocr	4 SA-3 4-rail launchers (w/o missiles) 17 SA-3 trangs 15 SA-3 cans 2 LOW BLOW radars 2 FLAT FACE radars	Site is at Amritsar Airfield.	16	Hindon SA-3 SAM Site A01-03 28-42-45N 077-21-27E		Unc		SA-3 site at Hindon Airfield (BE 0400-08446) was last observed occupied in Feb '79	30	Bardola SA-2 SAM Training Site A18-02 22-13-18N 073-11-59E		Ocr	3 SA-2 launchers (w/o missiles) 2 SA-3 4-rail launchers (w/o missiles) 1 prob FAN SONG radar	SA-2/SA-3 equipment may be observed at this training site
4	Adampur A/Fd SAM Site 31-26-00N 075-45-40E		Ocr	6 SA-3 4-rail launchers (w/o missiles) 2 LOW BLOW radars 2 FLAT FACE radars 1 SQUAT EYE radar	Approx 50 SA-3 cans & 7 SA-3 trangs are in the SW disposal area of Adampur Airfield.	17	Delhi SAM Site Ghaziabad C08-02-26-35-45N 076-51-28E		Ocr	6 SA-2 launchers (w/o missiles) 1 SA-2 trang 1 FAN SONG radar	SA-3 equipment was observed at this site from Dec '78 through May '79	31	Bardola SAM Support Facility 22-14-22N 073-12-03E		Opr	2 SA-2 launchers (w/o missiles) 2 SA-3 4-rail launchers (w/o missiles, in travel mode) 7 SA-2 trangs 12 SA-3 cans 2 SA-2/SA-3 cans	Fac used jointly for SA-2 & SA-3 support
5	Bharinda Airfield 30-16-10N 074-45-30E		Ocr	6 SA-2 launchers (w/o missiles) 7 SA-2 trangs 1 FAN SONG radar	A field-deployed SA-2 site has been at this airfield since at least Nov '79	18	Delhi SAM Site Dhandhara C06-02-26-33-50N 076-51-28E		Unc		SA-2 equipment was last observed at this site in May '79	32	Bardola SAM Site Kanchrapura C02-02 22-14-30N 088-27-55E		Opr	6 SA-2 launchers (w/o missiles) 3 SA-2 trangs (1 with prob missile) 1 FAN SONG F radar	
6	Chandigarh SAM Site Chand North C15-02 30-46-15N 075-44-43E		Ocr	6 SA-2 launchers (w/o missiles) 4 SA-2 trangs 1 FAN SONG radar		19	Delhi SAM Support Facility 28-30-32N 077-19-24E		Opr	24 SA-2 trangs 26 SA-2 cans 5 SA-2 can trangs	SA-3 equipment was observed at this fac in Nov and Dec '79	33	Calcutta SAM Support Facility Barracks 22-47-12N 088-21-40E		Opr	3 SA-3 4-rail launchers (w/o missiles) 1 SA-2 trang 4 SA-2/SA-3 cans (approx) numerous pieces of SA-2/SA-3-related equipment	Fac at N end of Barrackpore Airfield. I used jointly for SA-2 & SA-3 support; additional SA-3 equipment may be observed on the E side of the airfield.
7	Chandigarh SAM Support Facility 30-39-49N 074-47-33E		Ocr	8 SA-2 trangs 6 SA-2 cans 1 FLAT FACE radar (in support area) 1 SQUAT EYE radar (in support area)		20	Delhi SAM Depot 28-30-32N 077-19-24E		Opr	22 SA-2 launchers (w/o missiles) 5 SA-3 4-rail launchers (w/o missiles) 13 SA-2 trangs 2 SA-2 trangs 1 FAN SONG radar (being assembled/disassembled) 1 LOW BLOW radar 1 BIG BAR radar numerous pieces of related SAM equipment	Major SAM maint depot & fab of spare parts for SA-2 equipment. SA-3 equipment was first observed here	34	Calcutta SAM Site SW A22-02 22-36-33N 088-16-05E		Ocr	6 SA-2 launchers (w/o missiles) 1 SA-2 trang 1 prob FAN SONG radar	
8	Chandigarh SAM Site Rajpura B02-02 30-33-10N 075-35-55E		Ocr	6 SA-2 launchers (w/o missiles) 5 SA-2 trangs 1 FAN SONG radar		21	Delhi SAM Site Tardbhad B07-2 28-22-25N 077-16-30E		Ocr	3 SA-2 launchers (w/o missiles) 1 SA-2 trang	No FAN SONG radar was observed; site was last observed fully operational in May '79	35	Bombay SAM Site Kailhet B03-02 18-14-30N 072-59-10E		Ocr	3 SA-3 4-rail launchers (w/o missiles) 1 SA-2 trang 4 SA-2/SA-3 cans (approx) 1 prob LOW BLOW radar	
9	Chandigarh SAM Site Chand East B02-02 30-34-20N 076-54-55E		Ocr	6 SA-2 launchers (w/o missiles) 8 SA-2 trangs 1 FAN SONG radar		22	Delhi SAM Site Sohna C02-26-16-29N 076-58-40E		Ocr	3 SA-2 launchers (w/o missiles) 9 SA-2 trangs (6 in support area) 1 FAN SONG F radar		36	Bombay SAM Site 18-56-19N 072-57-45E		Unc		Site has never been observed occupied
10	Anahla SA-3 SAM Site A01-03 30-22-18N 076-49-40E		Ocr	9 SA-3 4-rail launchers (w/o missiles) 4 SA-3 trangs 3 LOW BLOW radars 3 FLAT FACE radars 1 SPOON REST radar	Normally 6 SA-3 4-rail launchers are assigned to 4 squadrons; 9 SA-3 launchers have been at Anahla Airfield.	23	Jaisalmer SAM Site 26-53-20N 070-52-40E		Ocr	6 SA-3 4-rail launchers (w/o missiles) 1 SA-3 trang 50 SA-3 cans (approx) 2 FLAT FACE radars 1 SQUAT EYE radar 1 SPOON REST radar	Site is at Jaisalmer Airfield.	37	Bombay SAM Support Facility 18-56-40N 072-59-15E		Opr	1 SA-2 trang	
11	Chandigarh SAM Site Mullana A12-05 30-16-55N 077-06-00E		Ocr	3 SA-3 4-rail launchers (w/o missiles, 2 in travel mode) 14 SA-3 trangs (13 in support area) 45 SA-3 cans (approx) 1 LOW BLOW radar 1 FLAT FACE radar	equipment has replaced the SA-2 equipment normally seen here	24	Agri SAM Site NW A14-2 27-14-28N 077-51-13E		Ocr	6 SA-2 launchers (w/o missiles, 2 in travel mode) 4 SA-2 trangs (2 with missiles) 1 FAN SONG F radar		38	Poona SA-2 SAM Site South A01-02 18-34-25N 073-55-20E		Ocr	6 SA-2 launchers (w/o missiles) 7 SA-2 trangs 1 FAN SONG F radar	Site is on the S side of Barrackpore Airfield.
12	Chandigarh SAM Site Shahad B24-03 30-15-19N 076-39-27E		Ocr	6 SA-3 4-rail launchers (w/o missiles, in travel mode) 12 SA-3 trangs (in support area) 40 SA-3 cans (approx) 1 prob LOW BLOW radar	SA-3 equipment has replaced SA-2 equipment normally	25	Agri SAM Support Facility 27-09-50N 077-58-15E		Opr	1 SA-2 trangs 2 prob SA-2 cans	Fac is at the NE end of Agri Airfield.	39	Bombay SAM Test Range 15-50-30N 080-29-00E		Ocr	2 SA-3 4-rail launchers (w/o missiles) 2 SA-3 trangs (support area) 2 SA-2/SA-3 cans (support area) 150 SA-2 cans (support area, approx) 8 SA-3 cans 1 LOW BLOW radar 1 FLAT FACE radar 1 SPOON REST radar numerous pieces of related SAM equipment	SA-3 equipment was first seen here on 4 Mar '80; previously only SA-2 equipment had been observed
13	Srinagar SAM Site 28-23-20N 073-54-10E		Ocr	6 SA-3 4-rail launchers (w/o missiles) 17 SA-3 trangs 45 SA-3 cans (approx) 2 LOW BLOW radars 1 prob FLAT FACE radar	Site is at Srinagar New Airfield.	26	Agri SAM Site B05-2 27-01-15N 077-52-40E		Opr	6 SA-2 launchers (w/o missiles) 8 SA-2 trangs (1 in support area) 1 FAN SONG F radar		27	Bhuj SA-3 SAM Site A01-03 23-17-15N 069-40-14E		Ocr	15 SA-2 4-rail launchers (w/o missiles) 14 SA-3 trangs 2 LOW BLOW radars 2 FLAT FACE radars 1 SQUAT EYE radar	Site is at Bhuj Airfield.

*Several additional SAM sites have been abandoned/overgrown and are not listed in this report.

**Unc—unoccupied; Ocr—occupied; Opr—operational

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REFERENCES

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MAPS OR CHARTS

DMA. Operational Navigation Chart; Sheets G-7, H-8, J-8, K-8, H-9, and J-9; scale 1:1,000,000 (UNCLASSIFIED)

DOCUMENT

1. DoD [Redacted] *Phase Out of the Indigenous SA-75 Missile (Devil) Program*, 111018Z, 8 Feb 80
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